

53) What mass of AgNO_3 can be dissolved in 250 grams of water at 20°C ? (The solubility of AgNO_3 in 100 grams of water at 20°C is 222.0g)

55 A) The solubility of methane, the major component of natural gas, in water at 20°C and 1.00 atm pressure is 0.026 g/L. If the temperature remains constant, what will be the solubility of this gas at the following pressures?

A) 0.60 atm

55B) The solubility of methane, the major component of natural gas, in water at 20°C and 1.00 atm pressure is 0.026 g/L. If the temperature remains constant, what will be the solubility of this gas at the following pressures?

B) 1.80 atm

58) How many milliliters of 0.500 M KCl solution would you need to dilute to make 100.0 mL of 0.100M KCl?

59) Calculate the molarity of a solution that contains 0.50 g of NaCl dissolved in 100.0 mL of solution.

60 B) Calculate the moles and grams of solute in the solution: 5.0×10^2 mL of 2.0 M KNO_3

60 D) Calculate the moles and grams of solution in the solution: 2.0 L of 0.30 M Na_2SO_4

61 A) Calculate the grams of solute required to make the following solution: 2500 grams of solution in a 0.90% solution (m/m)

61 B) Calculate the grams of solute required to make the following solution: 0.050 kg of 4.0% (m/m) MgCl_2 solution.

62 B) What is the percent by mass of sodium chloride in the solution: 15 grams of NaCl dissolved in 485 grams of water.

63 B) What is the concentration (in % v/v) of the following solution: 175 mL of isopropyl alcohol ($\text{C}_3\text{H}_8\text{O}$) is diluted with water to a total volume of 275 mL.

70) Describe how you would make an aqueous solution of methanol (CH_3OH) in which the mole fraction of methanol is 0.40.

71 A) What is the boiling point of the solution when 0.50 mol glucose is in 1000 g H_2O ?

71 B) What is the boiling point of the solution when 1.50 mol NaCl is in 1000 g H_2O ?

73 A) Determine the freezing points of each 0.20 *m* aqueous solution: K_2SO_4

77) Describe how you would prepare an aqueous solution of acetone ($\text{C}_3\text{H}_6\text{O}$) in which the mole fraction of acetone is 0.25.

82) Calculate the freezing point and also boiling point of a solution that contains 15.0 grams of urea ($\text{CH}_4\text{N}_2\text{O}$) in 250 grams of water. NOTE: urea is molecular, so it is considered non-volatile. You will need to recognize if something is molecular or not on your own for the test!

83) Calculate the mole fractions (both for the solute and solvent) in a solution that is 25.0 grams ethanol ($\text{C}_2\text{H}_6\text{O}$) and 40.0 grams of H_2O .